

U.S. Patent Application Serial No. 10/622,513

**Amendment Accompanying Request for Continued Examination filed October 3, 2005**

In response to final Office action dated June 3, 2005

### **REMARKS**

Claims 12 and 14-15 are pending in this application. Claims 7-11 have been canceled without prejudice or disclaimer, claim 12 has been amended, and new claims 14 and 15 have been added.

Applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **June 3, 2005**.

Support for the amendment to claim 12 and new claims 14 and 15 is discussed below.

**Newly submitted claims 7-10 are directed to an invention that is independent or distinct from the invention originally claimed ... (Office action paragraph no. 7)**

Claims 7-10 are canceled without prejudice or disclaimer.

**Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office action paragraph no. 8)**

The Examiner rejects the claim on the basis of the word “and” in the expression “at least one selected from La, Ce, ..., Sr and Ca.”

The rejection is overcome by the amendment to claim 12. Although Applicant believes that the wording in claim 12 is grammatically correct and is appropriate alternative claim language,

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Applicant here amends claim 12 to add the phrase "the group consisting of". Claim 12, as amended, thereby uses standard Markush language.

**Claim 11 is rejected under 35 U.S.C. 102(b) as anticipated by Fisher (US 2002/0086926).**

(Office action paragraph no. 9)

**Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Takeda et al. (JP 2000-169765).** (Office action paragraph no. 10)

**Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) alone, or Fisher (US 2002/0086926) in view of Takeda et al. (JP 2000-169765) and further in view of Hall (EP 0459704).** (Office action paragraph no. 11)

The rejections of claim 11 are moot in view of the cancellation of claim 11 without prejudice or disclaimer.

**Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) alone, or Fisher (US 2002/0086926) in view of Takeda et al. (JP 2000-169765) and further in view of Hall (EP 0459704) and Wypych (*Handbook of Fillers*).** (Office action paragraph no. 12)

Reconsideration of the rejection of claim 12 is respectfully requested.

In the rejection, the Examiner cites the combination of Fisher, Takeda et al., and Hall, as providing the suggestion for the combination of a thermoplastic resin and a hexaboride as recited in

the second and third clauses of claim 12. The Examiner notes that “Fisher does not disclose that its hydrophilic hexaboride is surface treated with a silane compound as present claimed; however PVB is a hydrophobic polymer.” The Examiner cites *Handbook of Fillers* as teaching that hydrophilic fillers do not easily combine with hydrophobic polymers, and as suggesting a silane compound to increase the interaction between the filler and the polymer matrix, thereby improving filler dispersion and rheological properties.

In traversing the rejection, Applicant argues that there is no suggestion in the cited references for such a modification of Fisher, and that there is, in fact, no motivation in *Handbook of Fillers* for such a surface treatment of the hexaboride with a silane.

The Examiner states that, when Fisher's PVB is substituted by a hydrophobic polymer, a silane compound would improve filler dispersion and rheological properties in Fisher's composition. That is, the Examiner considers the lanthanum hexaboride in Fisher to be a “hydrophilic filler.” However, there is no indication in *Handbook of Fillers* that lanthanum hexaboride would be considered a “hydrophilic filler.” Moreover, there is no disclosure in Fisher indicating that dispersion of the lanthanum hexaboride is a problem, nor that there are any particular rheological issues in Fisher's composition. Applicant therefore submits that there is, in fact, **no suggestion or motivation in any the cited references** for the Examiner's proposed combination of *Handbook of Fillers* with the other references.

In addition, Applicant notes that the combination recited in claim 12 has **unexpected effects** over the cited references.

On page 33, line 18 to page 37, last line, the specification states a benefit from a composition of the invention having hexaboride treated on its surface with “at least one selected from the group consisting of silane, titanium and zirconia compounds,” as recited in claim 12. Specifically, the specification presents comparative data for water resistance for Example 6, in which a hexaboride was used with surface treatment, and Example 1 in which a hexaboride was used without surface treatment.

A heat radiation shielding polycarbonate sheet formed in Example 6 remained unchanged in visible light transmittance and solar radiation transmittance even after storage for 100 days in a thermo-hygrostat maintained at a temperature of 80°C and a humidity of 95% RH. When compared to Example 6, a heat radiation shielding polycarbonate sheet obtained in Example 1 showed increases in visible light transmittance and solar radiation transmittance by 0.3%, respectively, upon storage for 100 days under the above-mentioned conditions. In this way, it has been confirmed that surface treatment of a hexaboride as in Example 6 is significantly advantageous.

There is no suggestion in any of the cited references for this demonstrated effect, which is commensurate in scope with claim 12. Applicant submits that this effect is unexpected over the references.

Applicant therefore submits that claim 12 is not obvious over Fisher (US 2002/0086926), Takeda et al. (JP 2000-169765), Hall (EP 0459704) and Wypych (*Handbook of Fillers*), taken separately or in combination.

**Regarding new claims 14 and 15.**

New claim 14 depends from claim 12, and limits the amount of a hexaboride to “from 0.1 parts by weight or more to 10.0 parts by weight or less based on 100 parts by weight of the thermoplastic resin.” Support for this amendment is found in the description on page 15, lines 8 and 9, that the range is: “preferably from 0.1 part by weight or more to 10 parts by weight or less.”

New claim 15 depends from claim 12 and further limits the hexaboride to lanthanum hexaboride, limits the thermoplastic resin to “one selected from the group consisting of polycarbonate resin, polyether-imide resin and ethylene-tetrafluoroethylene copolymer resin”, and limits the amount of hexaboride to “from 2.0 parts by weight or more to 10 parts by weight or less”. Support for the lower limit of 2.0 parts by weight when these limitations are present may be found in Examples 1, 3, 5 and 6 in the present specification (pages 22-29). In these Examples, the hexaboride is lanthanum hexaboride, and the resin is polycarbonate (Examples 1, 6), polyether-imide (Example 3), or ethylene-tetrafluoroethylene copolymer (Example 5).

Applicant has argued above that base claim 12 is not obvious over the cited references, and therefore dependent claims 14 and 15 are not obvious over these references.

Reconsideration of the rejections is therefore respectfully requested.

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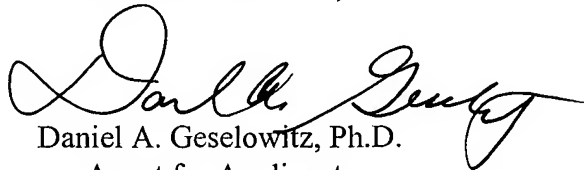
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If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: (RCE) Request for Continued Examination  
Petition for Extension of Time

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